

REMARKS

Claims 26–29, 34–44 & 47-52 are currently pending in this application. Applicant has herein canceled claims 53–58 without prejudice and amended claims 26, 34, 37 and 38 in response to the Office Action Mailed 10/25/01.

Claim Rejections - 35 U.S.C. §112, First Paragraph

Examiner has rejected claims 53-58 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification. Applicant has herein canceled claims 53-58 without prejudice or disclaimer. As such, the rejection is moot.

Claim Rejections - 35 U.S.C. §112, Second Paragraph

Examiner has rejected claims 26-29 and 38-44 under 35 U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 26, Examiner objected to the phrase “adapted to apply a force” as providing no structure and rendering the claim incomplete. Applicant has herein amended independent claim 26 to remove this language. Additionally, as amended, claim 26 now recites “a force actuator...” as an element providing structure. Claims 27-29 and 40-44 are dependent claims dependant on claim 26. Applicants amendment to claim 26 provides structure and completes the claim. Therefore, claims 26-29 and 40-44, as herein amended, are allowable under 35 U.S.C 112, first paragraph.

Regarding claim 38, Examiner has stated the texture simulator appears to be separate from the adapted to phase. Applicant has herein amended claim 38 to remove the adapted to phrase and positively recite “... a texture actuator, the texture actuator having a plurality of texture elements...” As such, claim 38 particularly points out and distinctly claims the subject matter which applicant regards as the invention. Therefore, claim 38 and dependant claim 39 are allowable under 35 U.S.C. 112, second paragraph.

Examiner has rejected claims 34-37 and 47-52 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has herein amended claim 34 to clarify the structure of applicant's invention that comprises the claimed link. Claim 34, as amended, recites, as an element to the peripheral device, "...a forcing member coupled to the surface, the forcing member comprising a flexible member and a link coupled to the flexible member, the link having a joint..." In regards to claim 50, applicant has amended the claim to clarify the correlation of the spring and the flexible member. Independent claim 34, as amended, and dependant claims 35-37 and 47-52 clarify the structure of the link. Therefore, claims 34-37 and 47-52 are allowable under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 U.S.C. §102(b)

Examiner has rejected claims 26, 28, 29, 38, 39, and 42 under 35 U.S.C. 102(b) as being clearly anticipated by Harvill et al. (USPN 5,986,643). Applicant has amended herein independent claims 26 and 38. Claim 26, as amended, comprises "...a first sensor proximate the member, the first sensor sensing forces at the member, the first sensor having a servo output..." Harvill et al. does not anticipate applicant's claimed first sensor. Claim 38, as amended, comprises "...a texture actuator, the texture actuator having a plurality of texture elements..." Harvill et al. does not anticipate applicant's claimed texture actuator. Therefore, independent claims 26 and 38 are allowable over Harvill et al. under 35 U.S.C. 102(b). Claims 28, 29 and 42 are dependant on claim 26 and are allowable as such. Claim 39, which is dependant on claim 38 is also allowable.

Claim Rejections - 35 U.S.C. §103(a)

Examiner has rejected claims 53-58 under 35 U.S.C. 103(a) as being unpatentable over Harvill et al. Applicant has herein canceled claims 53-58 and as such, renders this rejection moot.

Nonstatutory Double Patenting

Examiner has rejected claims 34-37, 49, 51 and 52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8 and 13 of U.S. Patent No. 5,631,861. Applicant respectfully disagrees. Applicant has amended independent claim 34 to require "...the peripheral device comprising:... a force sensor coupled to the forcing member, the force sensor providing a force servo output to the interface device..." Claims 8 and 13 of U.S. Patent No. 5,631,861 ('861) do not require a force sensor providing a force servo output. The scope of '861 claims would not lead one skilled in the art to conclude that a force sensor would be an obvious addition. There is no claimed structure that could benefit from the servo output. Given the prior art, applicant believes that the force sensor with a servo output would be not be obvious to one skilled in the art. Therefore, the claim 34 of the instant application is patentably distinct from claims 8 and 13 of '861. As such, independent claim 34 and dependant claims 35-37, 49, 51 and 52 are allowable.

Conclusion

Claims 26-29, 34-44 & 47-52 are currently pending in this application and allowable. Examiner is respectfully requested to consider applicant's amendment and to allow the pending claims. Should the Examiner have any questions, the Examiner is requested to call the undersigned at the number given below.

Respectfully submitted,

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Dated: January 25, 2002

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Version With Markings To Show Changes Made

In the claims:

Please cancel claims 53-58.

Please amend the claims as follows:

26. (amended) An interface device capable of allowing a user to communicat[ing]e with a computer running an interactive computer application and generating a graphic image and a graphic object, the interface device comprising:
a peripheral device in communication with the computer and capable of being translated linearly in three dimensions by [a]the user, [the peripheral device adapted to apply a force to the user,]the peripheral device comprising: a member adapted to contact the user; [and]a link coupled to the member[,]; and
a first sensor proximate the member, the first sensor sensing forces at the member, the first sensor having a servo output;
a force actuator coupled to the link, the force actuator generating forces through the link to the member; and
a second sensor coupled to the peripheral device, the second sensor [to] detecting a position of at least a portion of the peripheral device[to control the graphic image], the second sensor comprising an encoder providing a position output to the computer to control the graphic image,
wherein the peripheral device applies a force to the user based on the interaction of the graphic image with [a]the graphic object.

34. (amended) An interface device capable of allowing a user to communicat[ing]e with a computer running an interactive computer application and generating a graphic image and a graphic object, the interface device comprising:
a peripheral device in communication with the computer and capable of being manipulated by [a]the user, the peripheral device [adapted to apply a force to the user; and]comprising: a surface adapted to contact a portion of the user;
a forcing member coupled to the surface, the forcing member comprising a flexible member and a link coupled to the flexible member, the link having a joint; and a force sensor coupled to the forcing member, the force sensor providing a force servo output to the interface device;

a position sensor coupled to the peripheral device to detect a position of at least a portion of the peripheral device to control the graphic image[.]; and
[wherein the peripheral device comprises a surface adapted to contact a portion of the user and a forcing member coupled to the surface, the forcing member comprising a flexible member and a link having a joint, and wherein the forcing member is coupled to]a force activator [adapted to provide]providing a force to the forcing member, the force based on the interaction of the graphic image with [a]the graphic object.

37. (amended) An interface device according to claim 34 wherein the position sensor comprises an encoder.

38. (amended) An interface device capable of communicating with a computer running an interactive computer application and generating a graphic image and a graphic object, the interface device comprising:

a peripheral device in communication with the computer and capable of being manipulated by a user, the peripheral device [adapted to apply a force to the user]comprising a texture actuator, the texture actuator having a plurality of texture elements; and

a sensor coupled to the peripheral device to detect a position of at least a portion of the peripheral device to control the graphic image,

wherein [the peripheral device comprises a member adapted to]one or more of the texture elements selectively contact the user based on the interaction of the graphic image with a graphic object to simulate a texture of the graphic object.

50. (amended)An interface device according to claim 34 wherein the forcing member further compris[ing]es a spring for tensioning the flexible member.